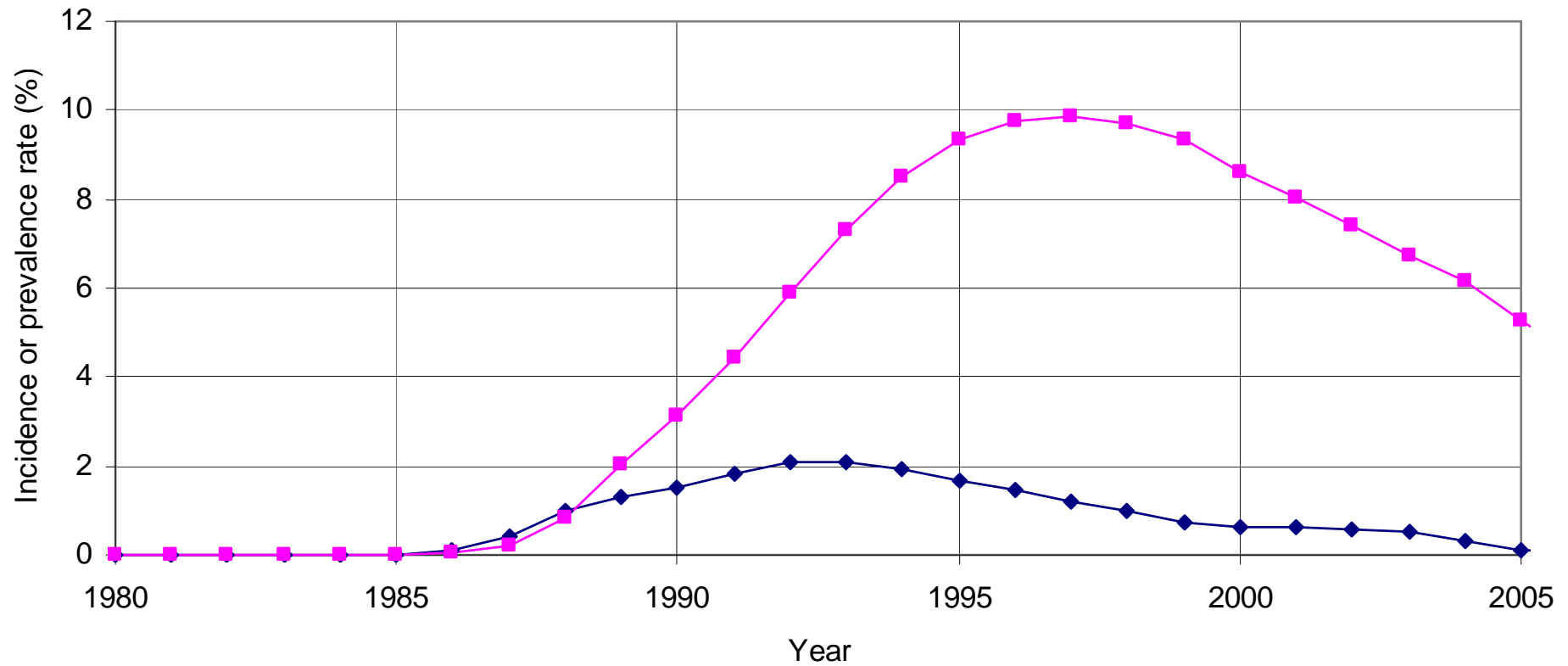


# **Global Evidence on Generalized HIV Epidemics Evidence for Future Prevention**

Jim Shelton  
USAID

SA Prevention Partners Meeting  
July 26, 2006

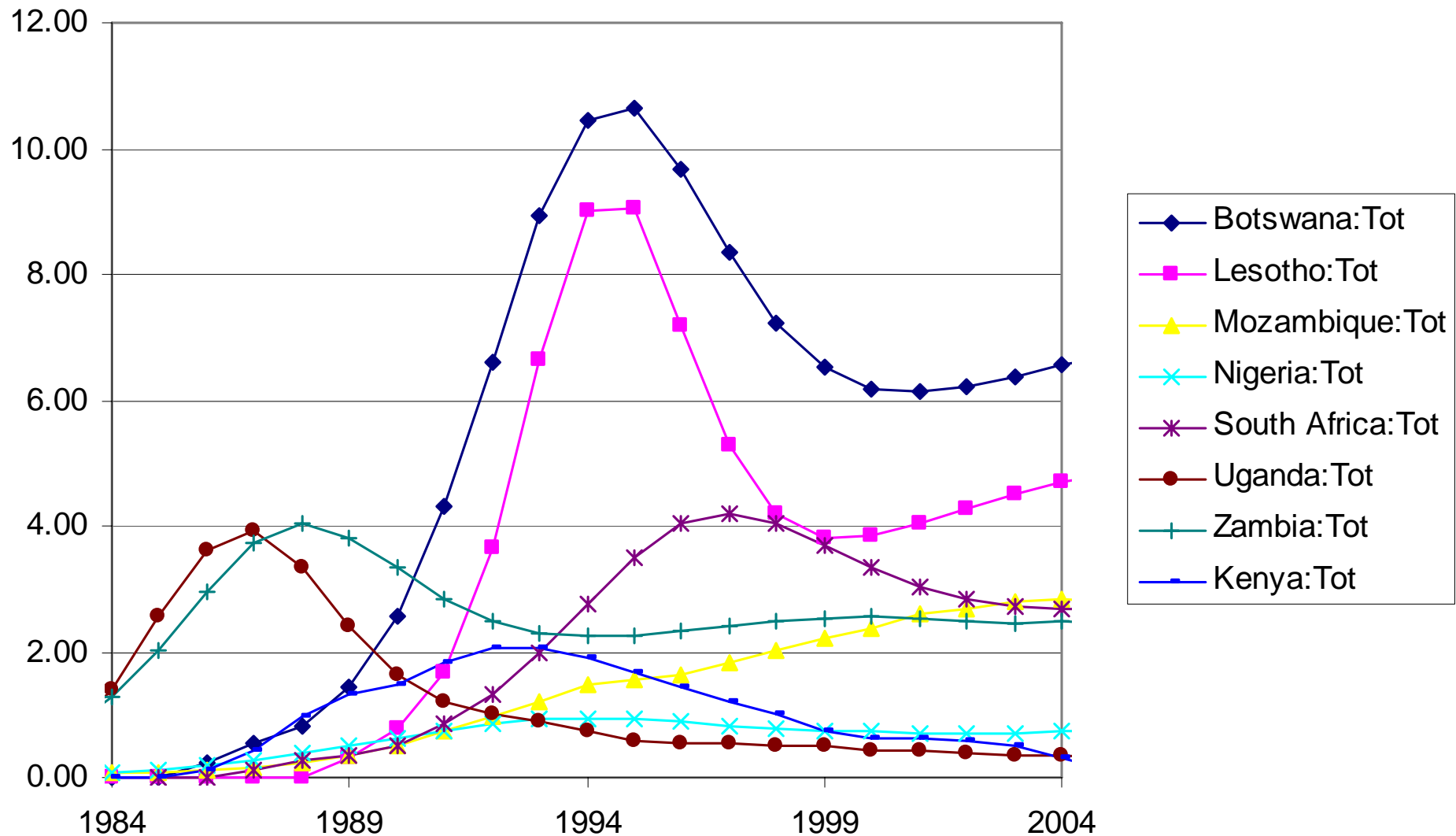
## Kenya Incidence and Prevalence Rates for the Population 15-49



Source: U.S. Census Bureau  
projections released 9/30/2004.

◆ Incidence rate    ■ Prevalence rate

# HIV Incidence Rate for Adults 15-49, Selected African Countries, 1984-2004

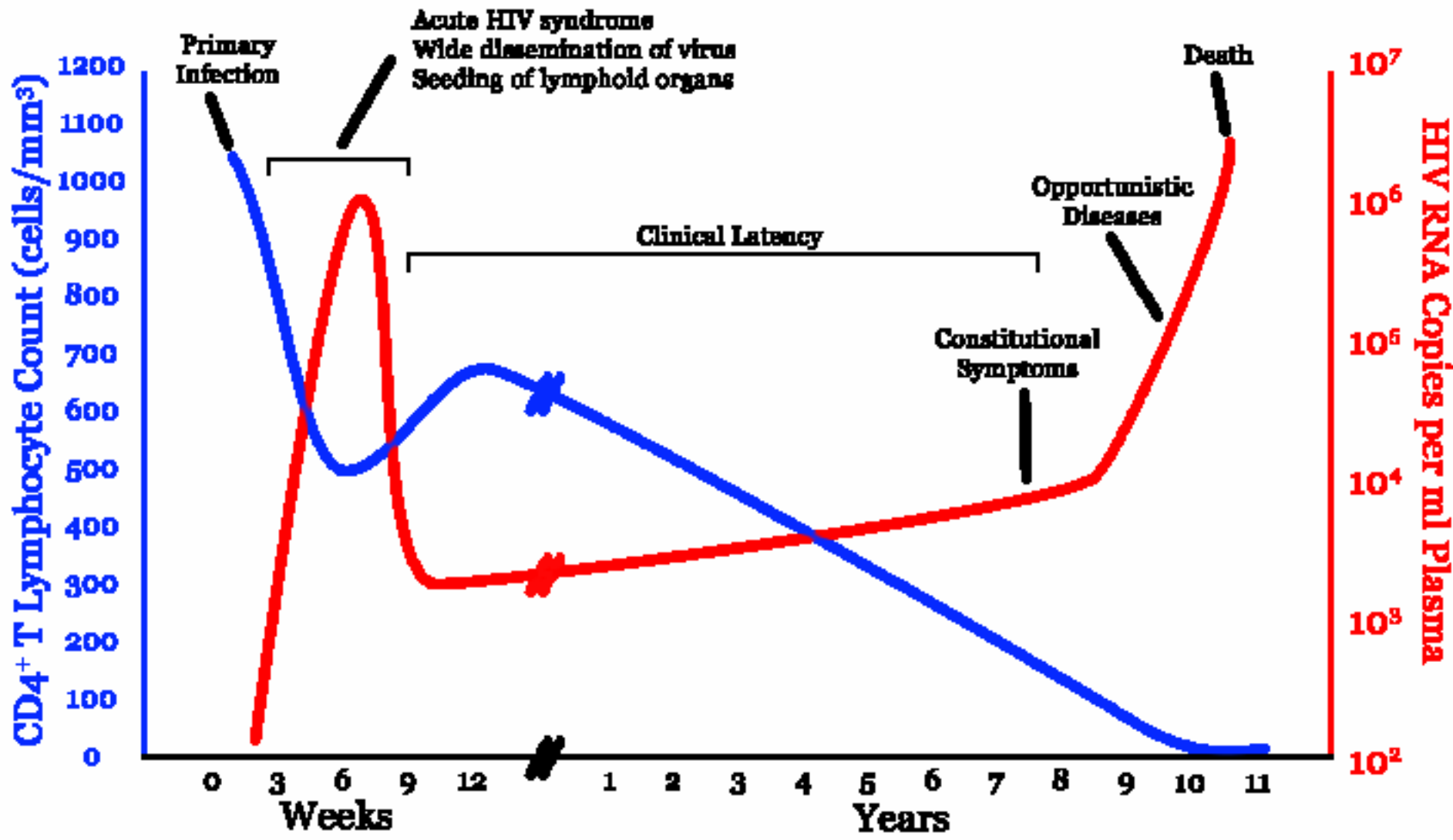


Census Modeling

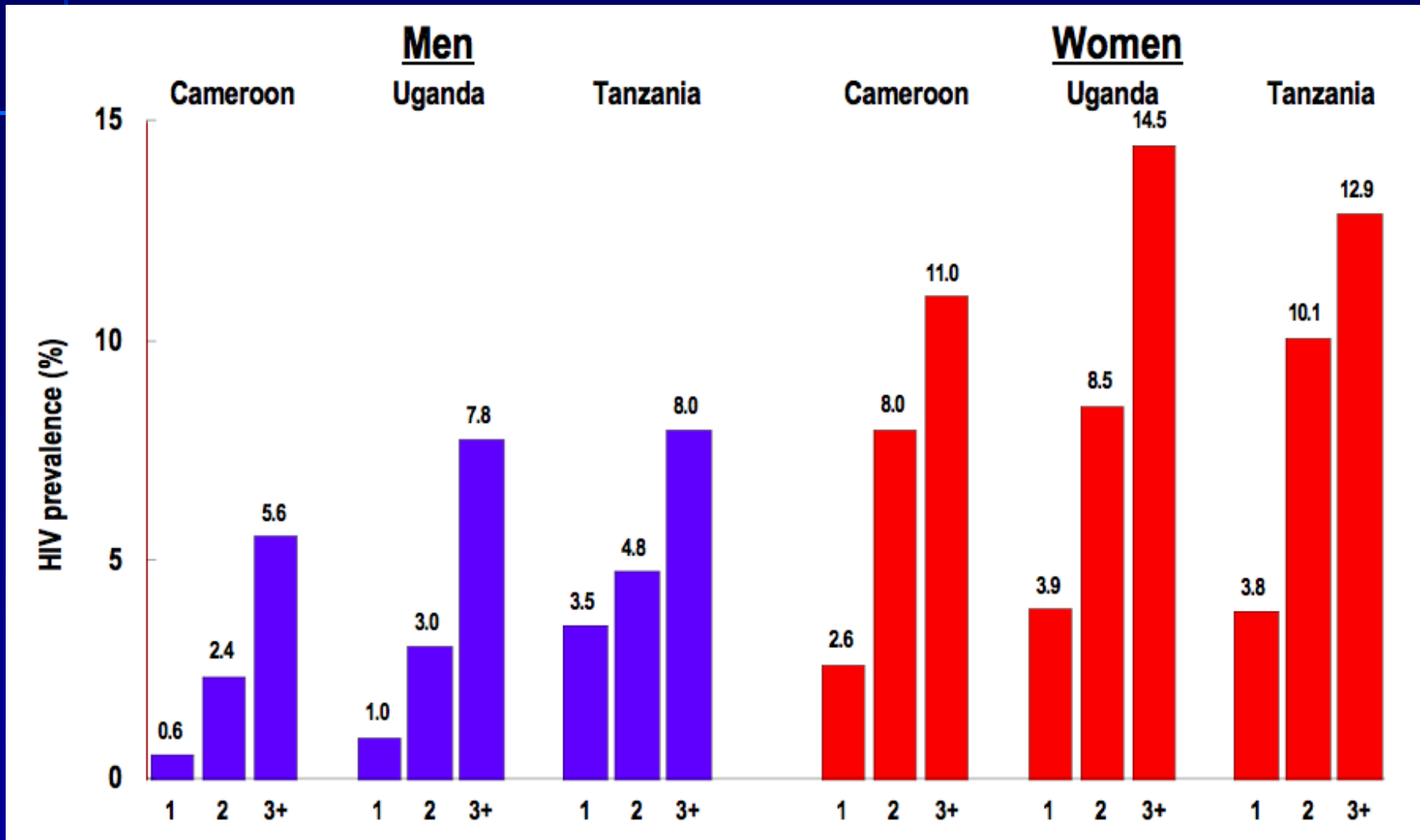
**Why is HIV so high  
in southern and  
eastern Africa?**

**Why these peaks  
in incidence?**

# Natural history of HIV



# HIV prevalence by number of lifetime sex partners, Sub-Saharan Africa



Source: Dr. Vinod Mishra, ORC MACRO 2006 (DHS & AIS surveys 2003 to 2005)

# Lifetime Sexual Partners Do Not Explain Everything

## Lifetime number of sexual partners, selected countries, mid-1990s

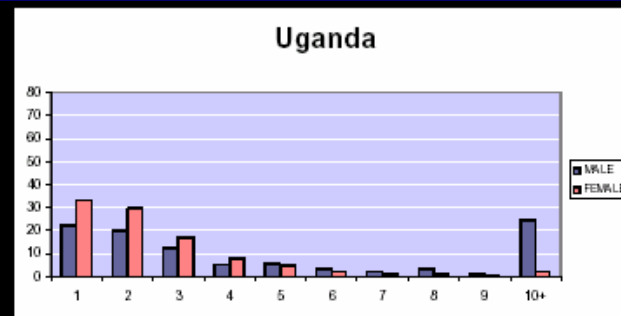
Pct of men  
with 10+  
partners

### Uganda

**18% HIV+**

1994

(*Rakai Sexnet study*)



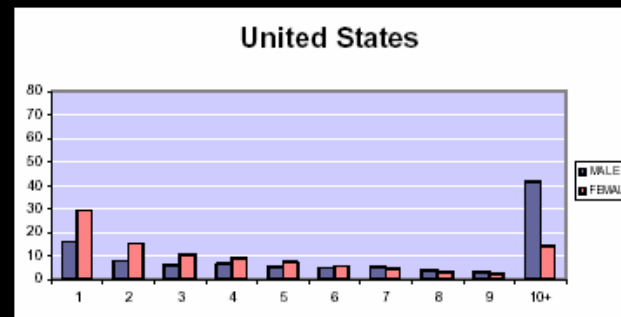
>20

### United States

**1% HIV+**

1994

(*NHSLS study*)



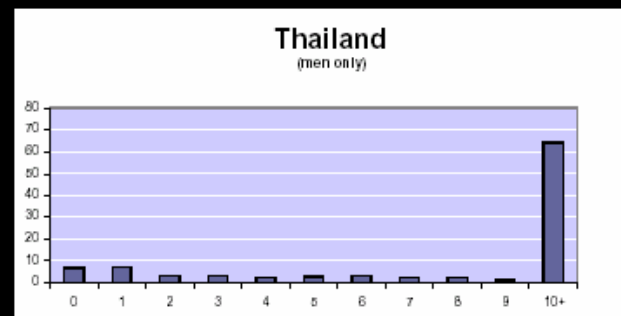
>40

### Thailand

**2% HIV+**

1993

(*BRAIDS study*)



>60



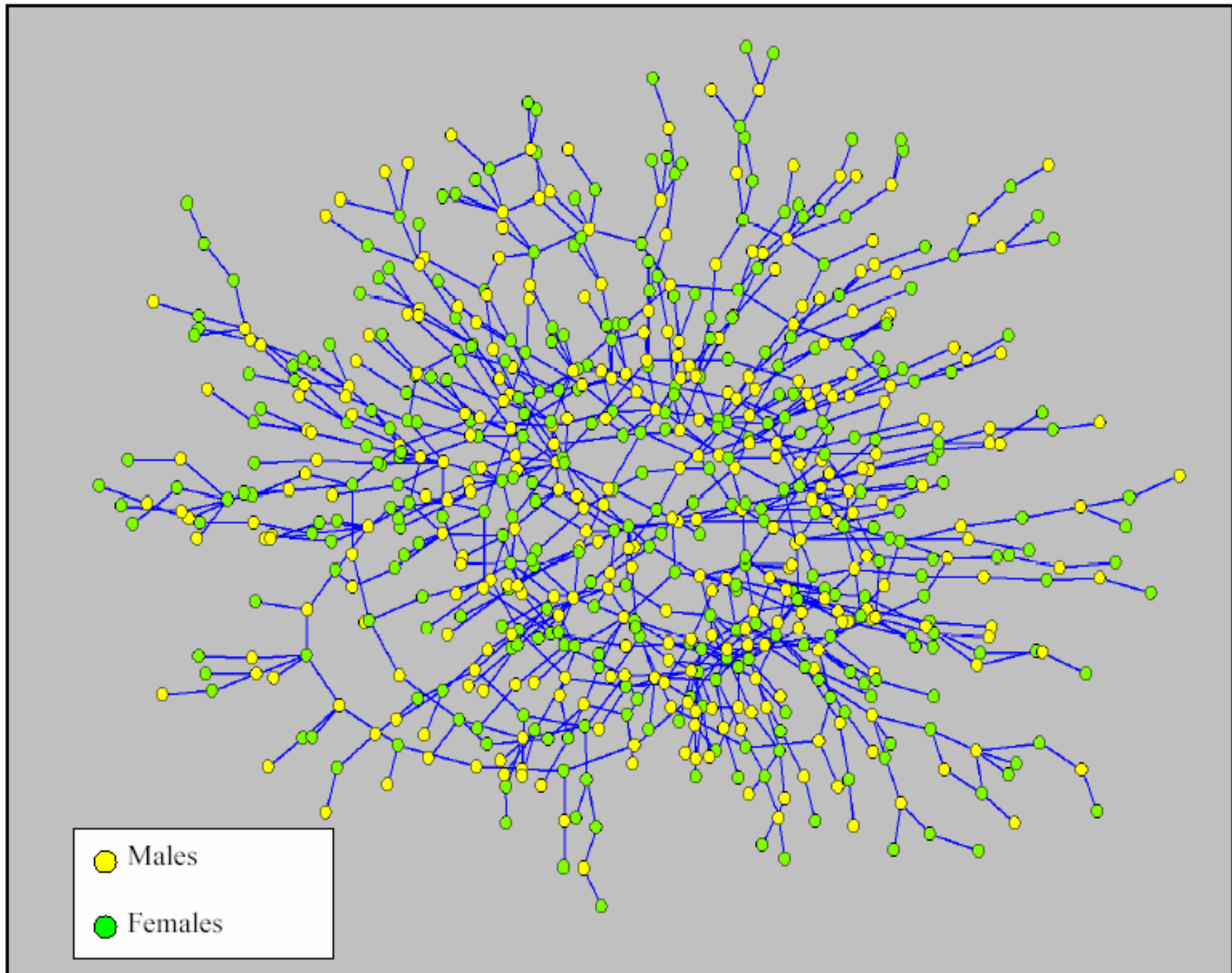


Fig. 5: largest connected component.  $N = 685$ . It comprises more than 65% of the population of the 7 villages surveyed.



GEORGE  
CLOONEY

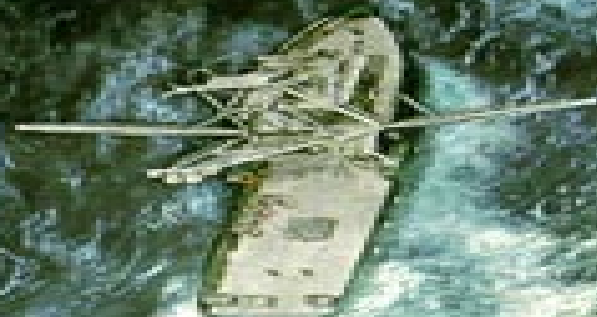
MARK  
WAHLBERG

WOLFGANG PETERSEN DIR.

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THE  
**PERFECT  
STORM**

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DVD

# Perfect Storm Factors for HIV Hyperepidemic in SSA

- Lack of circumcision
- Networks of multiple concurrent partnerships of men and women
- ?Presence of other STIs, especially ulcerative STIs
- (???Biological differences - Different HIV strain, etc)

# Reasons for Incidence Peaks

- Epidemic natural history
  - Self-adopted behavior change
  - Program effects on behavior

**Incidence will always  
peak.**

The effectiveness of prevention  
is actually reflected more in the  
rate and depth of the decline.

# UNAIDS Global Estimate of New Infections in 2003

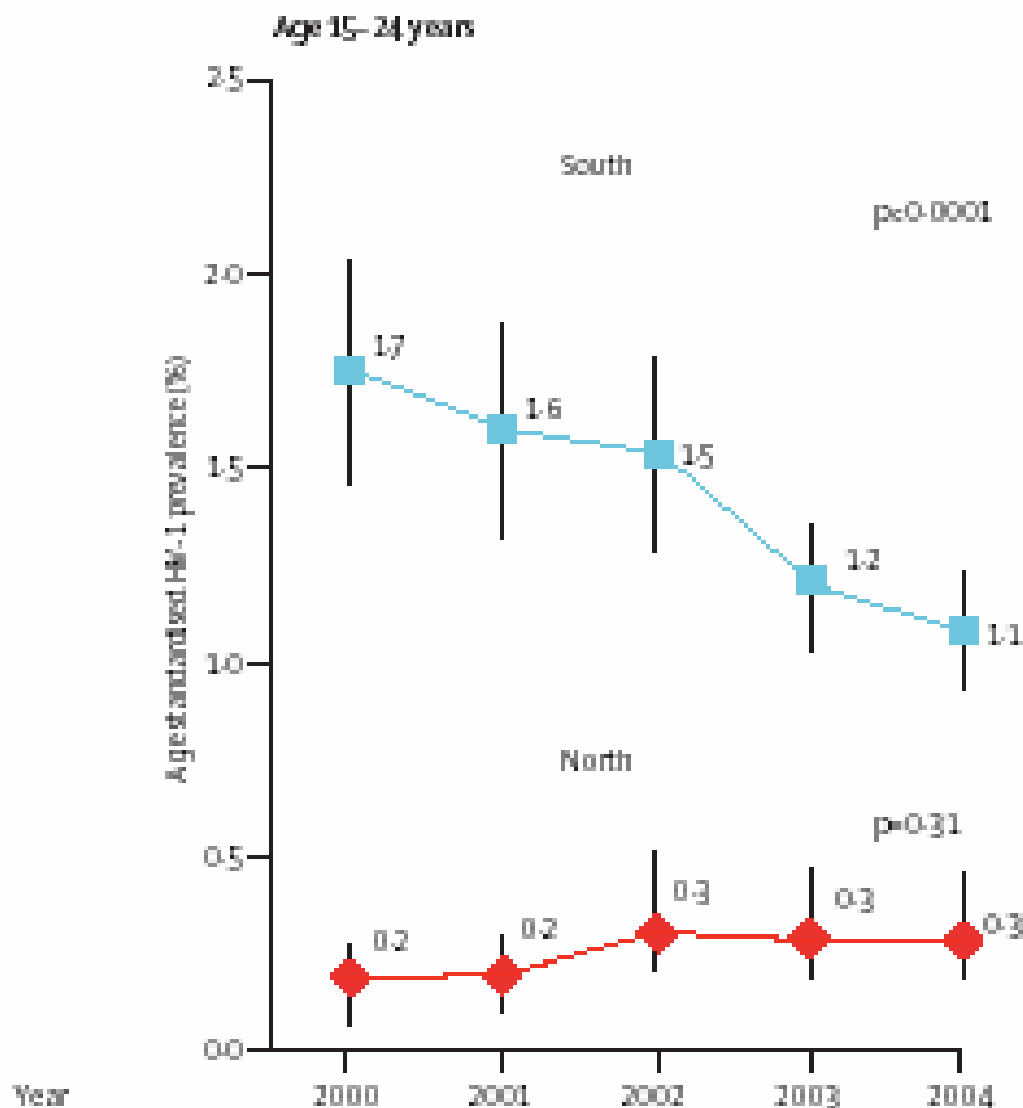
- 2003 Epi Update – 5 million
- 2004 Report – 4.8 million
- 2005 Report – 4.6 million
- 2006 Report
  - 3.9 million

(2005 Estimate in 2006 Report – 4.1 million)

**“The rate of new infections for southern Africa peaked in the late 1990’s at nearly 1.5 million per year. For the last three years , there have been 1.1 million new infections per year.”**

**UNAIDS statement April 2006.**

# HIV prevalence in women 15-24 in antenatal clinics, Four Southern and 14 Northern states in India



# China – 2005

- 650,000 HIV+
- 70,000 new infections

Indicates a rather stable epidemic







A

C

**Condom promotion with sex workers probably the single most intervention in the entire HIV epidemic.**

However, in South Africa (with 48 million people) public sector condoms alone were 346 million in 2004. And reported condom use at last sex for single aged 15-24 was 69%. ---- But infection rages on.



# Limitations of Condoms

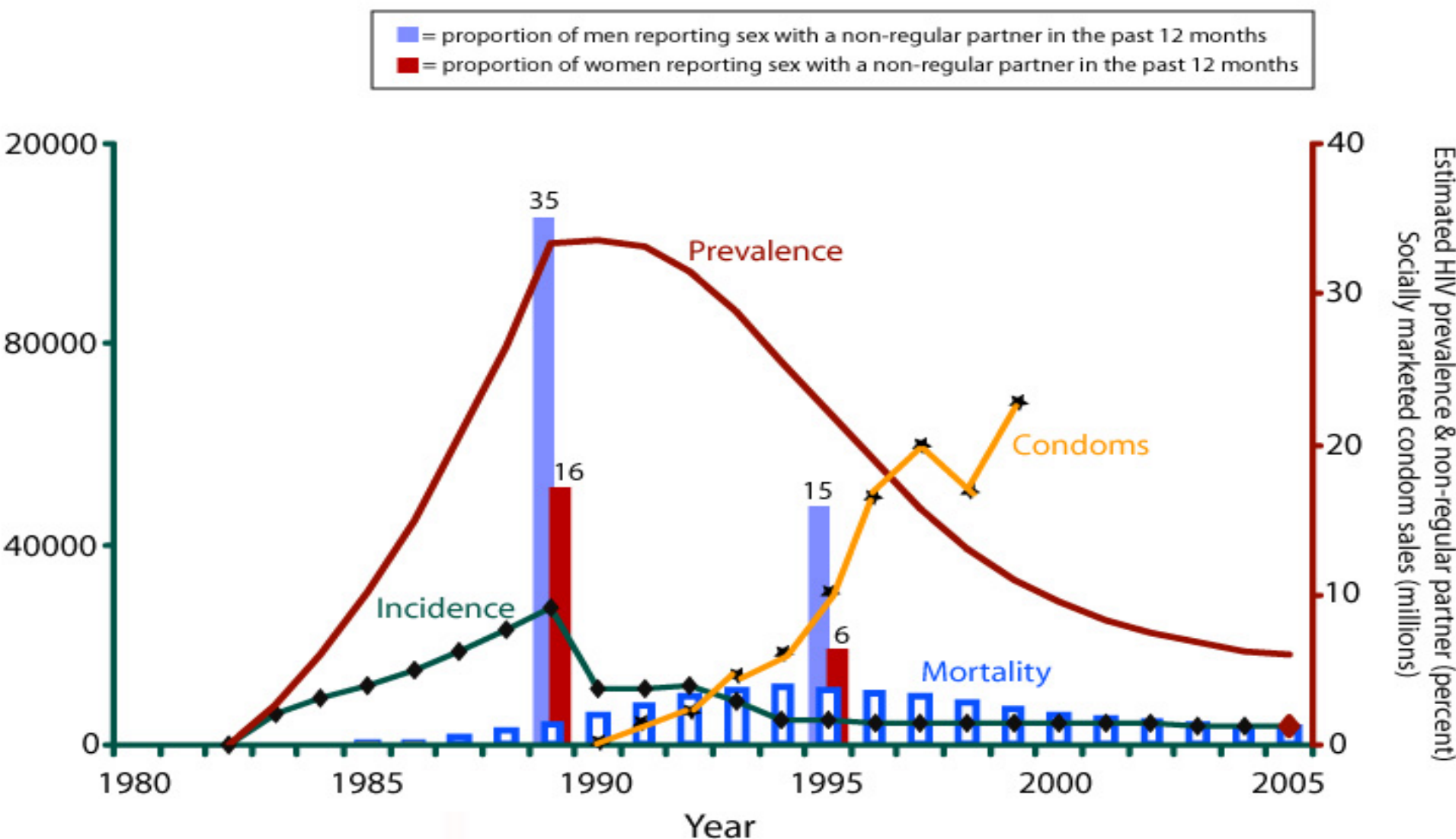
- 90% effective but only if used correctly and consistently
- Often not used consistently
- Tend not to be used in long term relationships
- Subject to risk compensation (disinhibition).

# Limitations of Primary Abstinence

- Young women may be subject to coercion
- Narrow age range of potential effect (e.g. Malawi age at first sex 17.3 vs. 18.0 for age at marriage)
- Adolescents important to transmission, but not the engine of the epidemic often believed.

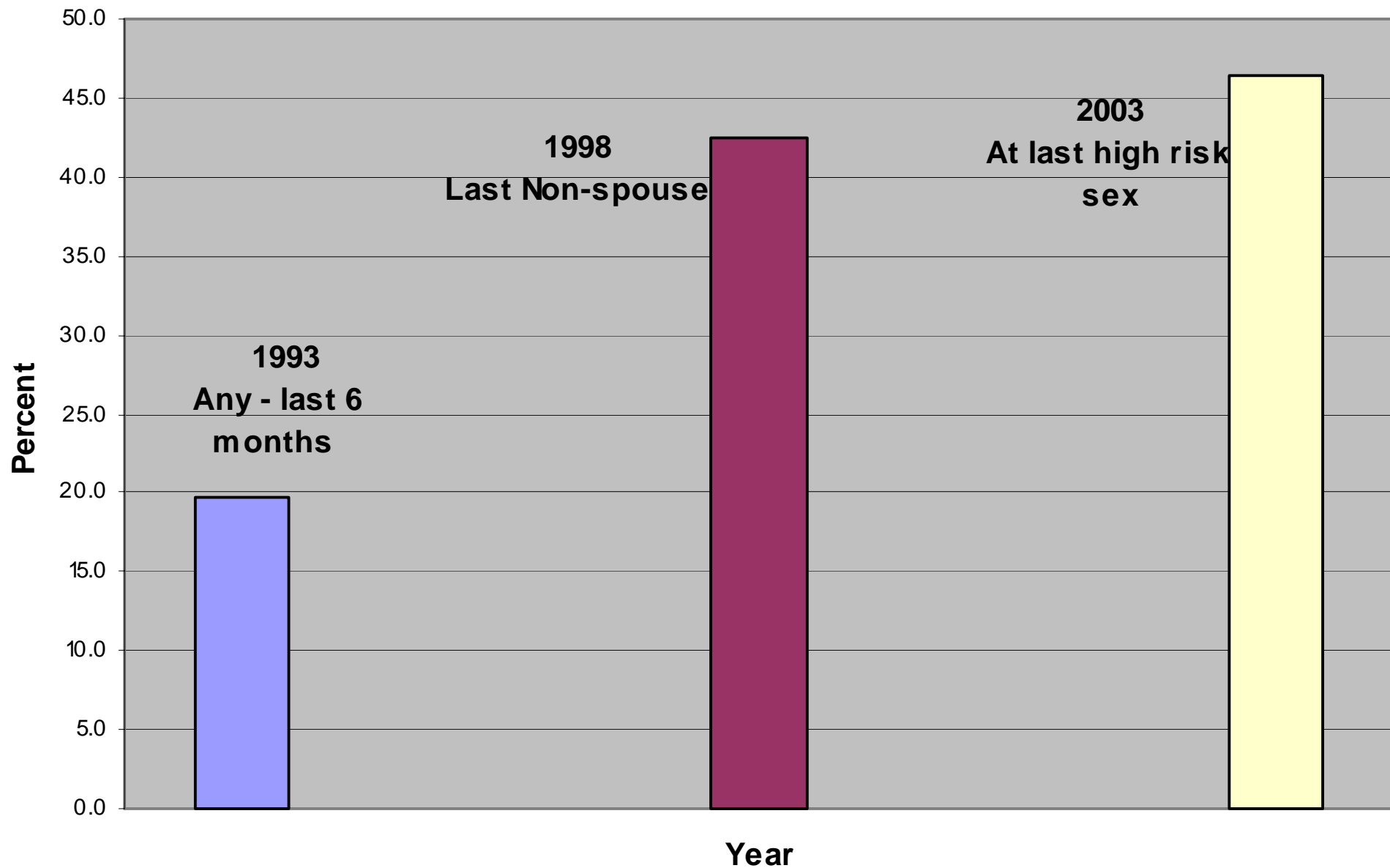
# Generalized epidemic successes: Uganda

"Trends" in HIV prevalence, incidence and possible correlates over time

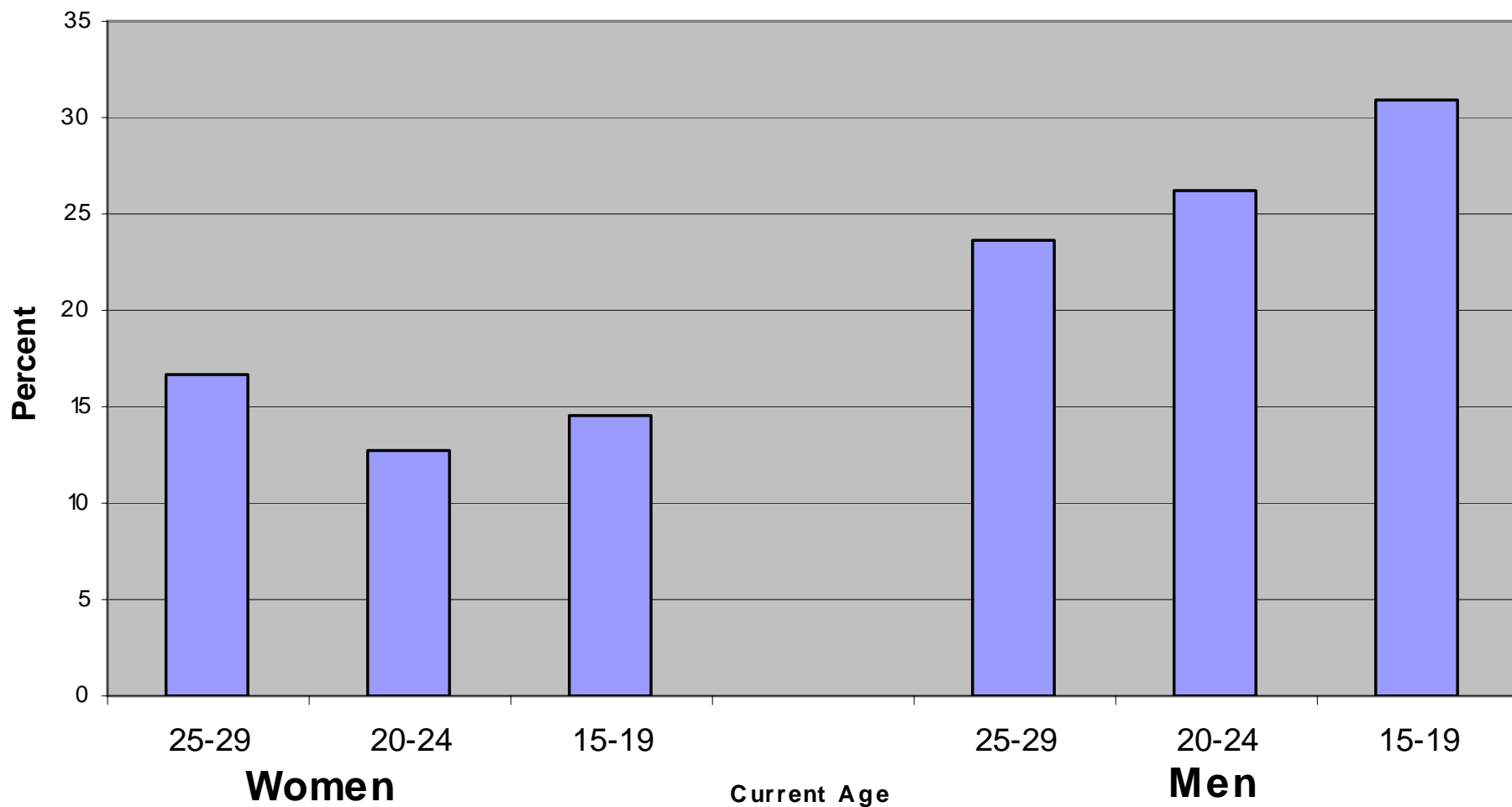


Adapted from Stoneburner and Low-Beer, in *Science* (30 April 2004)

## Changes in Condom Use, Men, Kenya 1993-2003



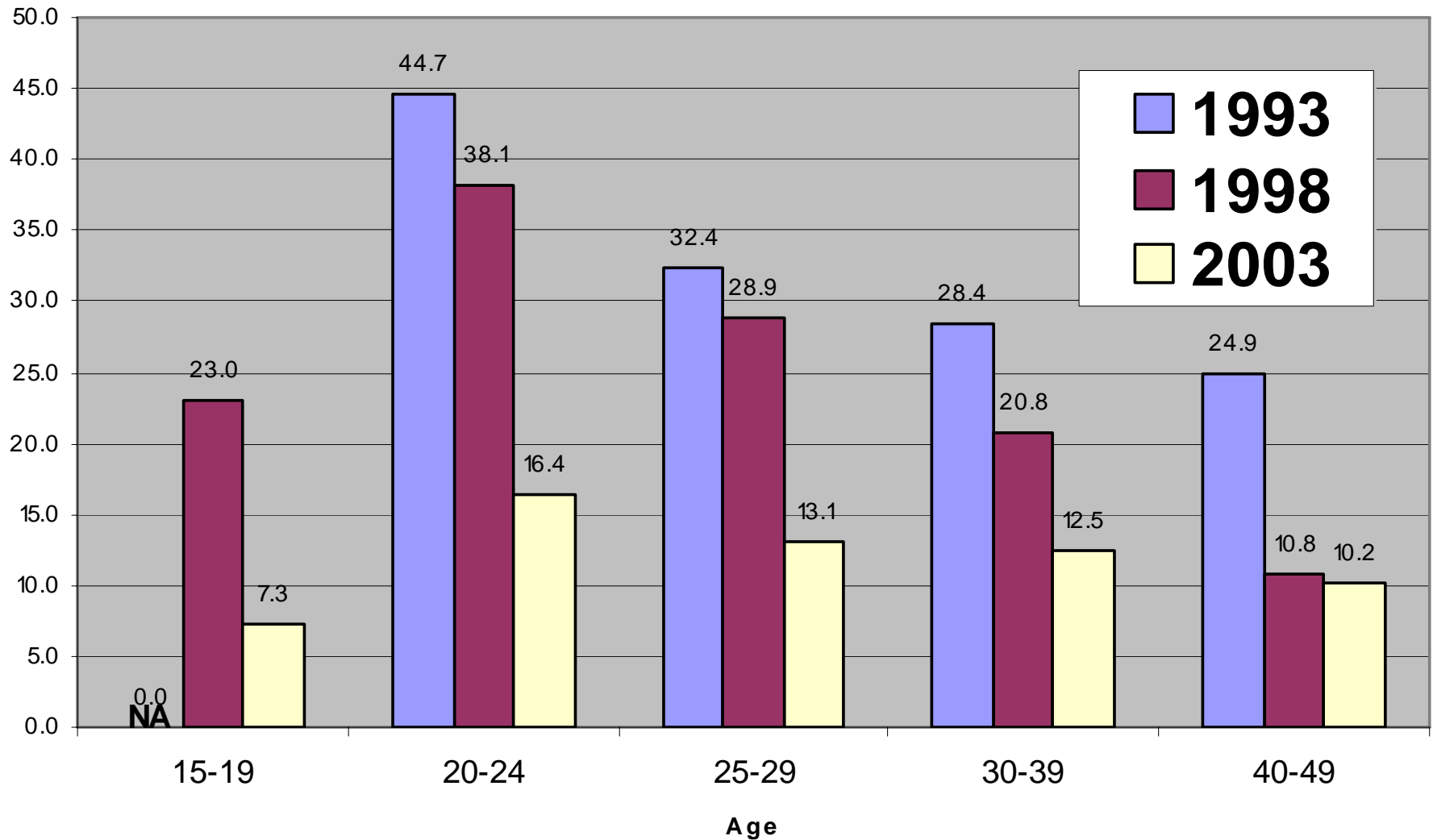
# Percent Reporting Sex by Age 15, Kenya, 2003



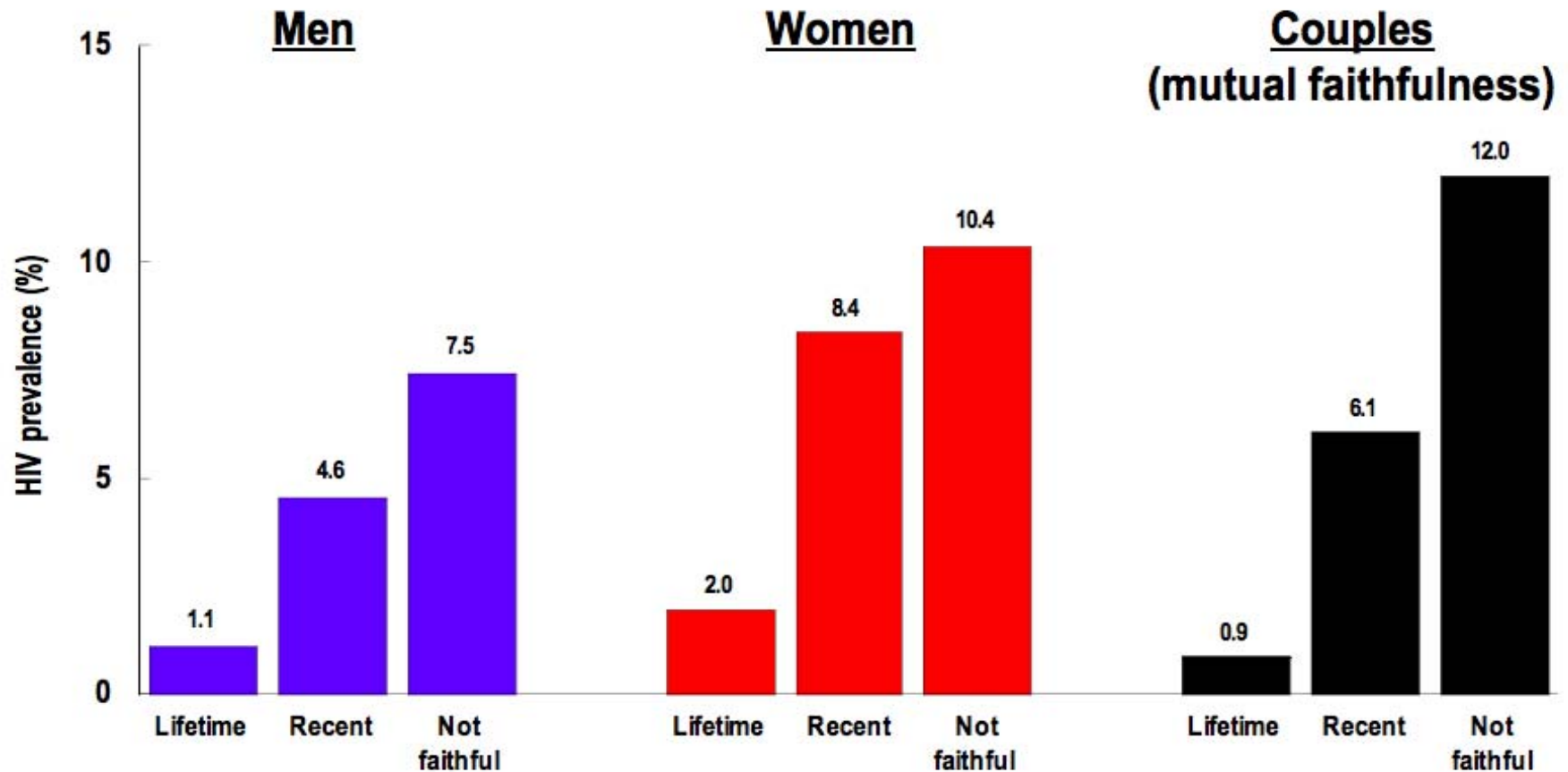


# Percent of Men with 2 or More Partners, Kenya 1993-2003

(In last 6 months for 1993, in last 12 months for 1998 and 2003)



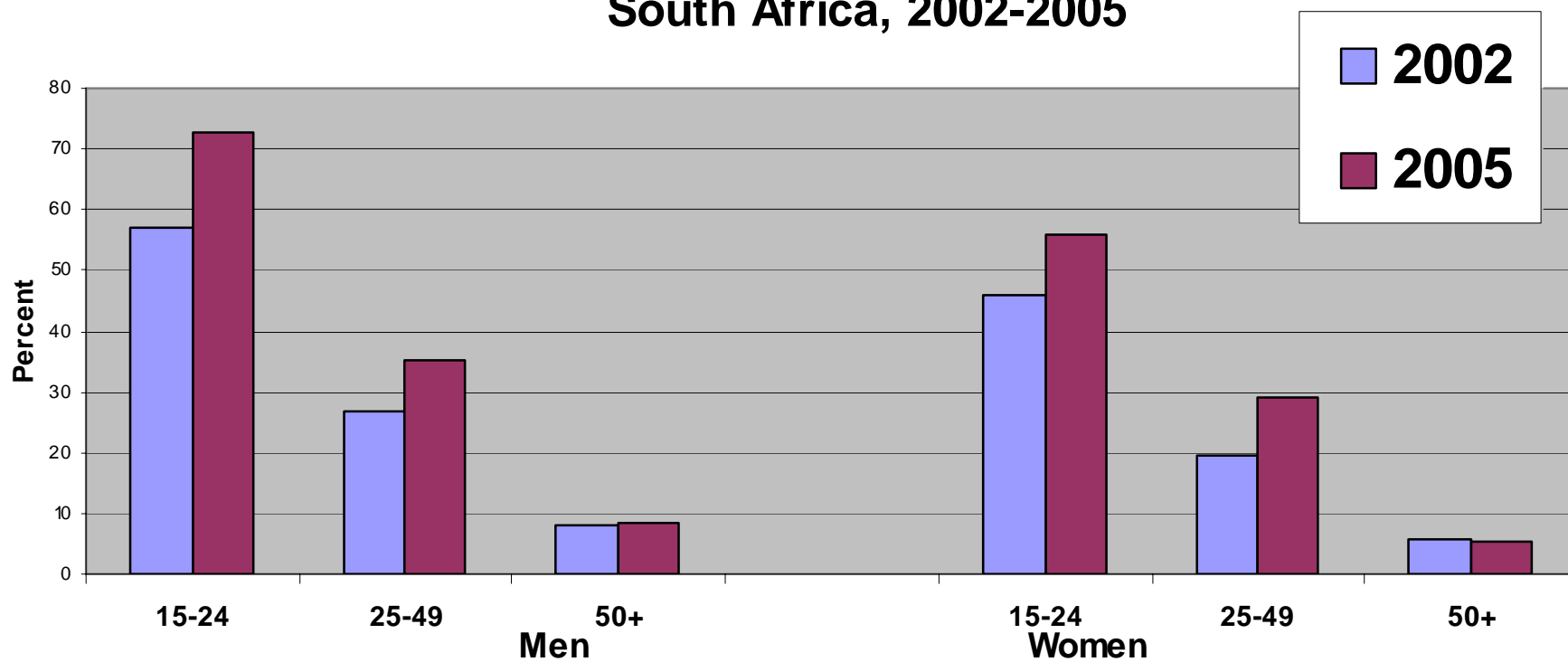
# HIV Prevalence by "B", Cameroon 2004



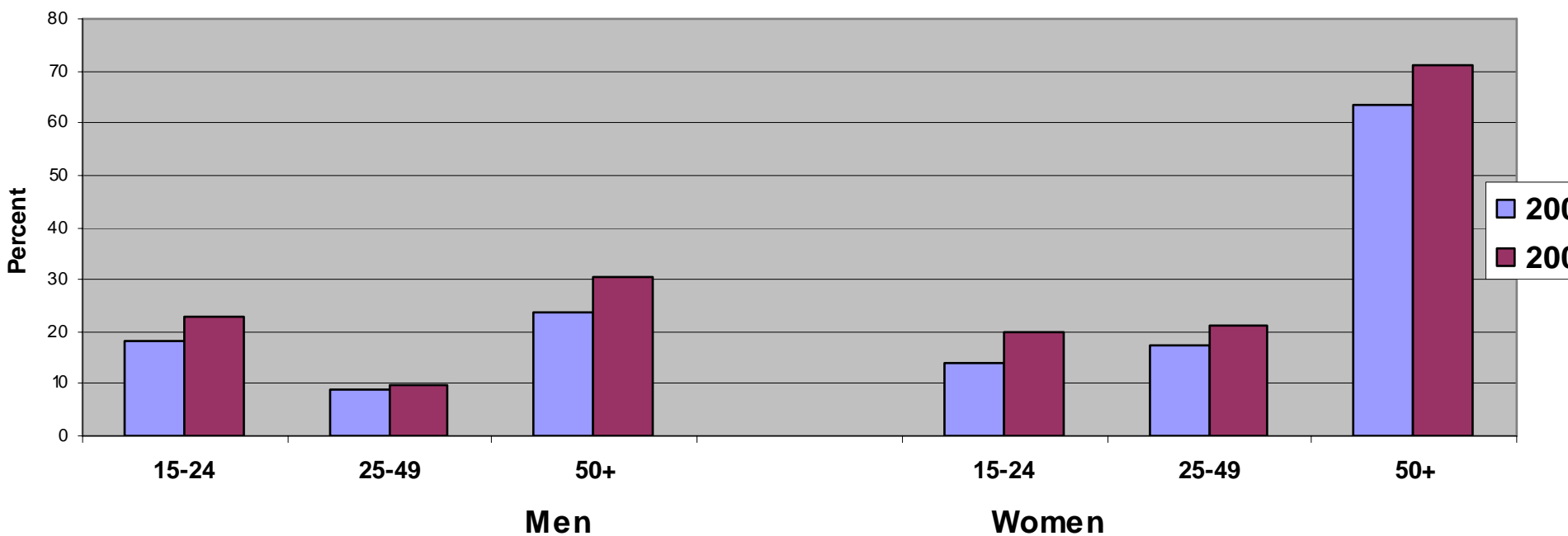
\* In cohabiting couples: one or both partners HIV-positive

Source: Dr. Vinod Mishra, ORC MACRO 2006 (DHS survey 2004)

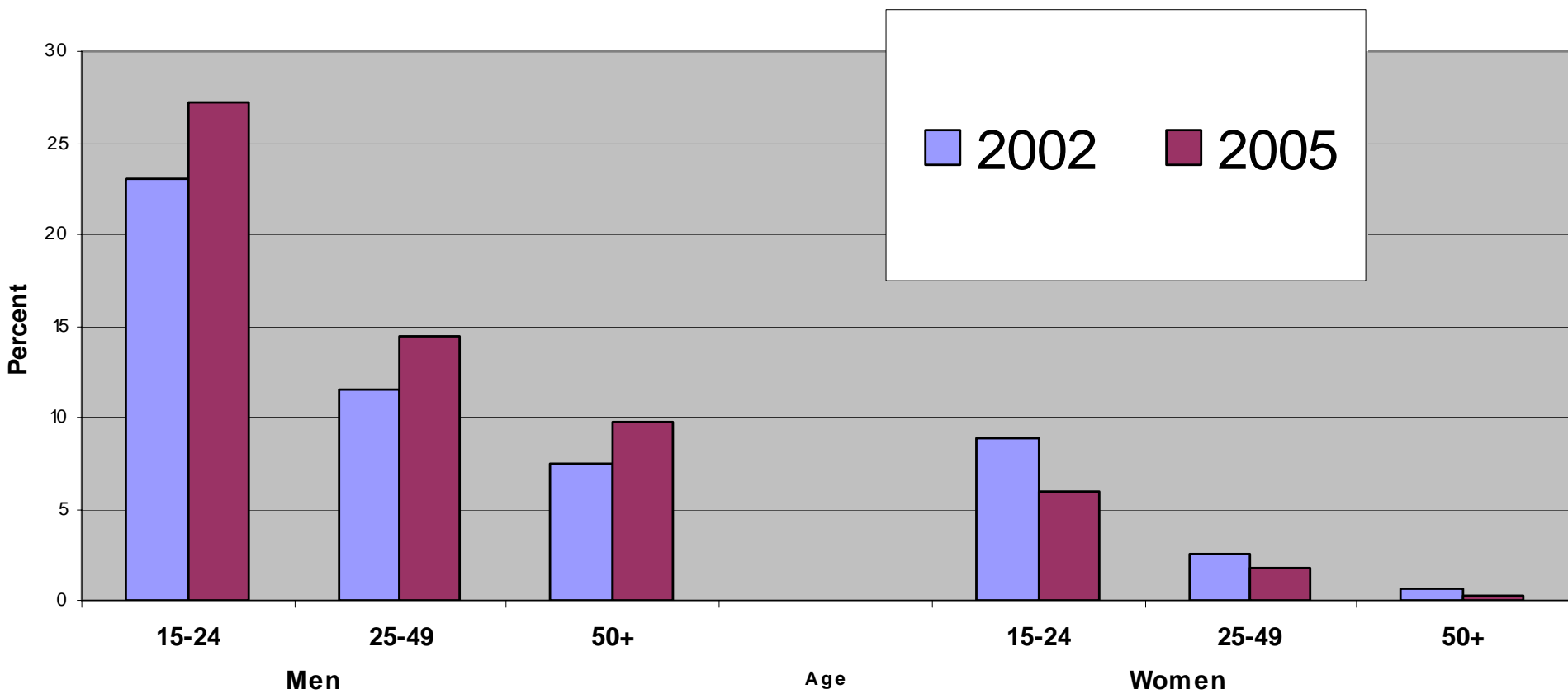
## Condom Use at Last Sex, South Africa, 2002-2005



**Previously Sexually Active but No Sex in Last 12 Months,  
South Africa, 2002-2005  
(Secondary Abstinence)**



**Percent with More than One Partner in last 12 Months, South Africa, 2002 and 2005**



# Overall “B” Strategy

- BCC “best practices” to reinforce behavior change many adopt spontaneously, emphasizing concurrent partner risk.
- Personalized risk key
- Aim to change the societal-level social norm by using all avenues and social capital entry points possible (mass media, faith-based organizations, youth groups, military, community leaders etc.) ----- “Tipping point”
- Core set of key behavior messages – consistent, simple, actionable.

# Prevention Based on Strong Partner Limitation Base (Leading with “B”)

- Condoms for residual high risk situations including discordant couples and sex work. Disinhibition minimized
- Abstinence programming supports fidelity and partner limitation after sexual debut. Supports norm of “responsibility”
- Counseling and testing supports BCC messages
- Male Circumcision mandates strong B message
- C&T includes B as well as C&A

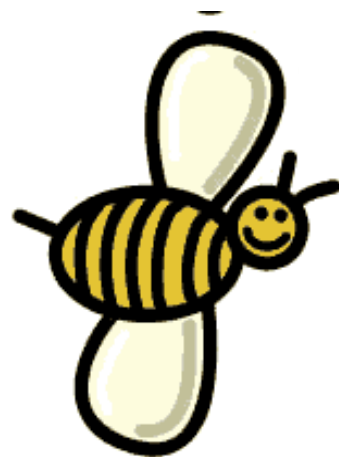
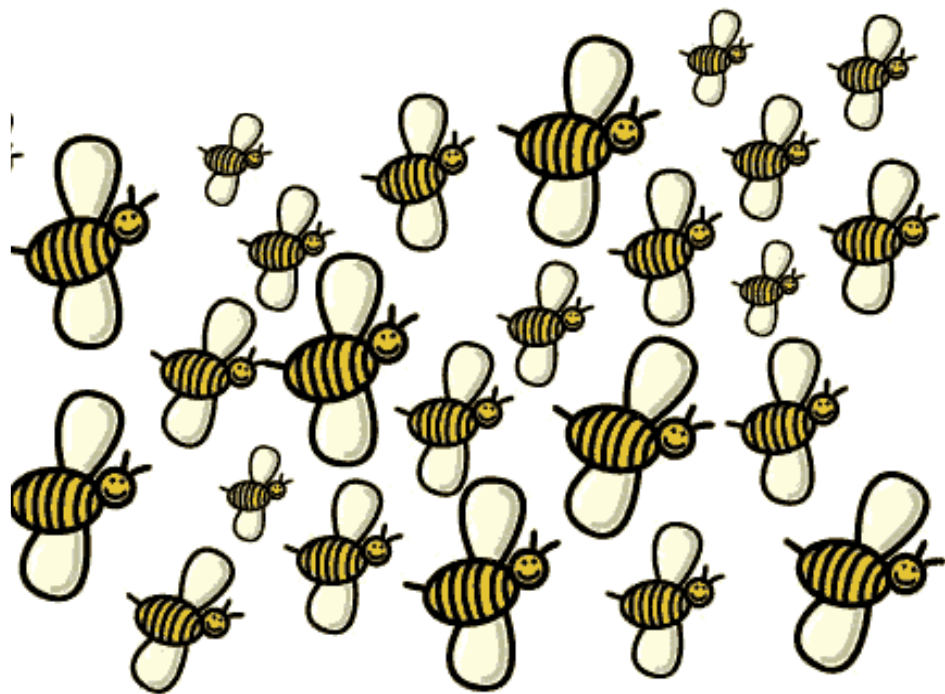
# Where does the Global HIV Epidemic Stand?

- “Mature” generalized epidemics in eastern and southern Africa
  - Some major declines (Uganda, Zim., Kenya, ?Rwanda, ?Haiti, ?Ethiopia)
  - Some raging on (SA, Botswana, Lesotho, Mozambique)
- West Africa stable (Male circumcision)
- Muslim world (and others with MC) low
- Rest of the world – pernicious, intransigent low-level concentrated-type epidemics (Worry about India)



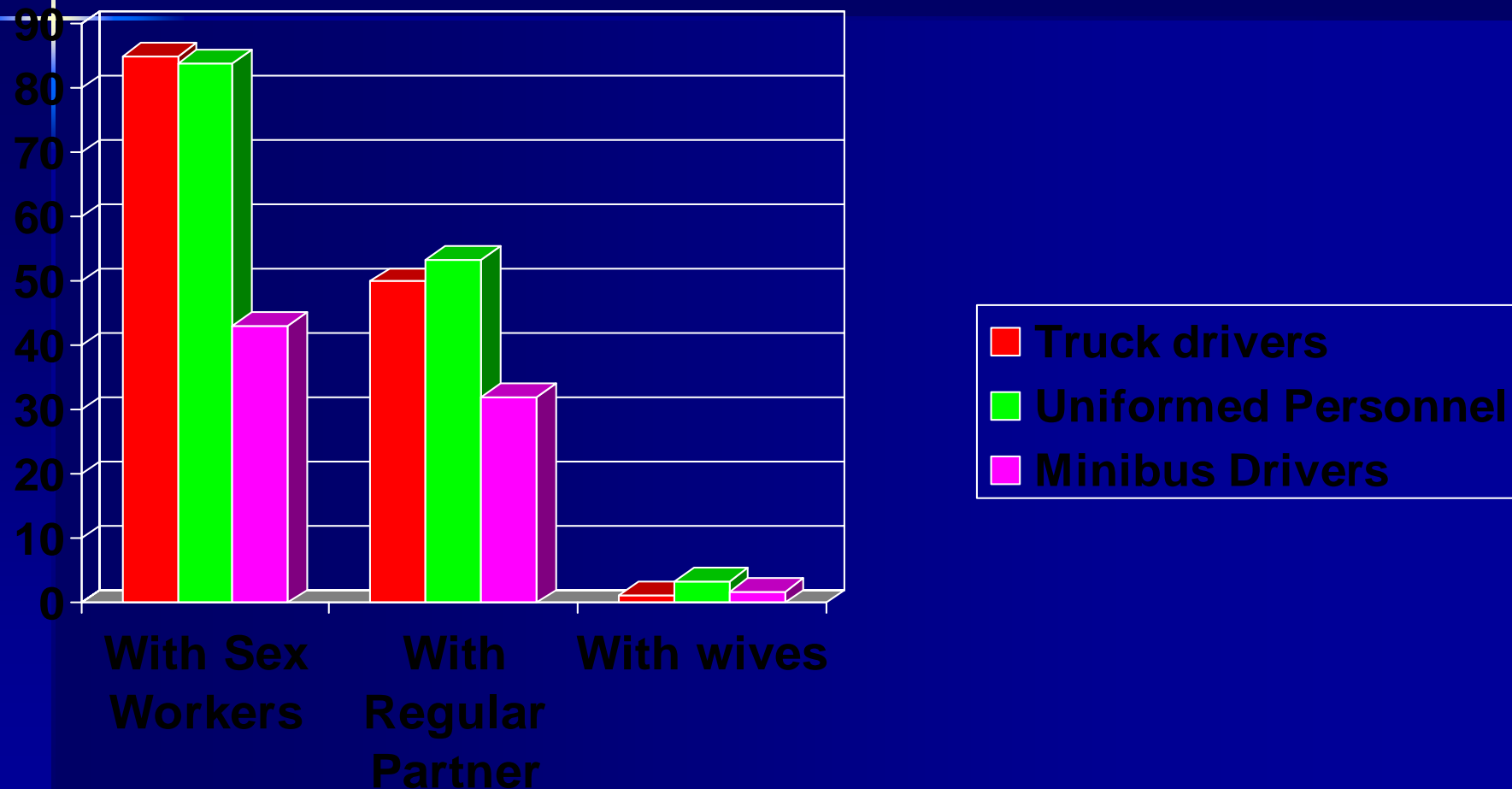
# Where does the SA Epidemic Stand re Primary Prevention? (JDS View)

- Stable (High) HIV Prevalence and Incidence
- Very Strong Condom Intervention
- Some degree of "B" and "A" but need more emphasis on state-of-the-art, coordinated effort emphasizing partner limitation
- Get ready for male circumcision intervention





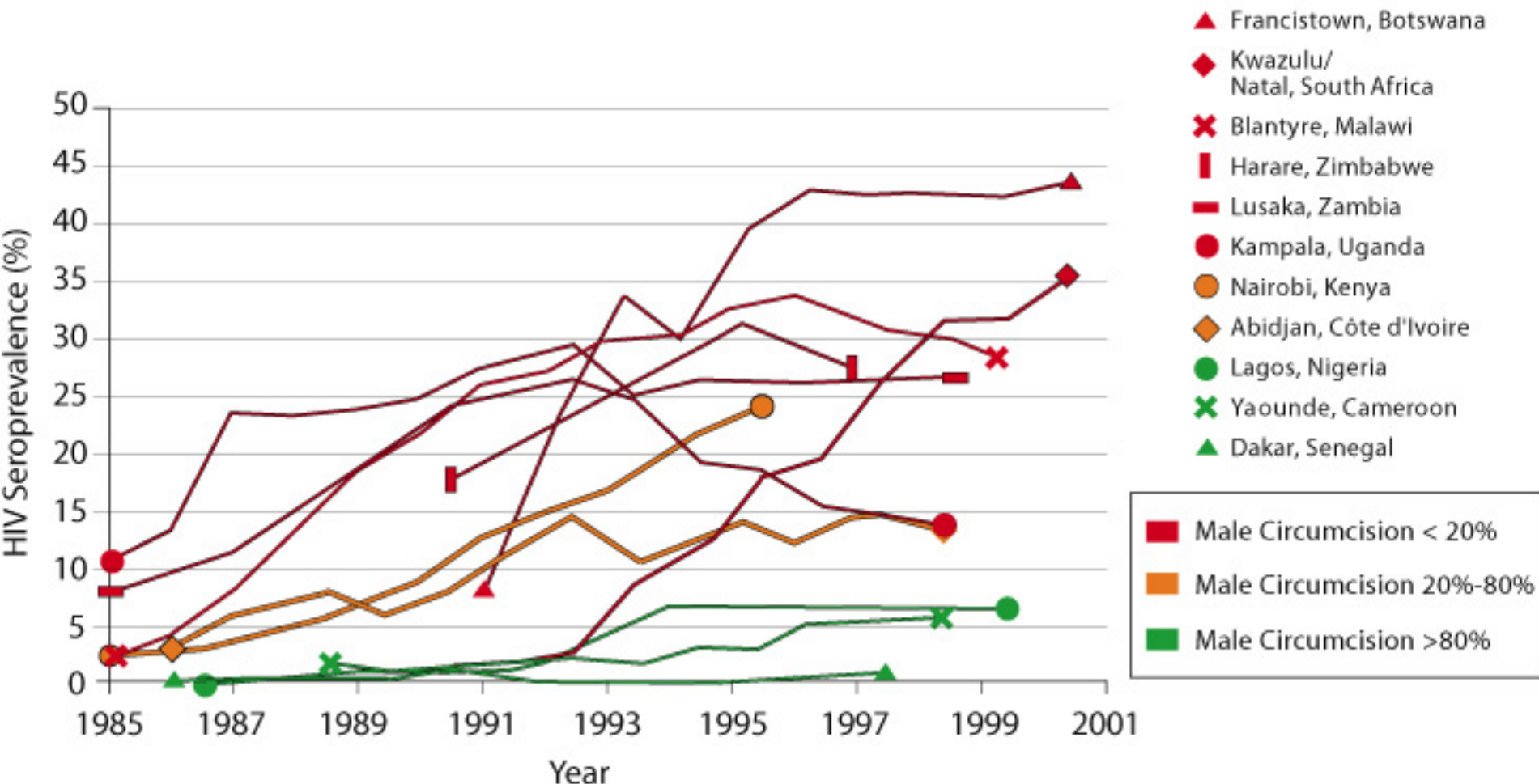
# Consistent condom use by type of partner, Zambia 2003



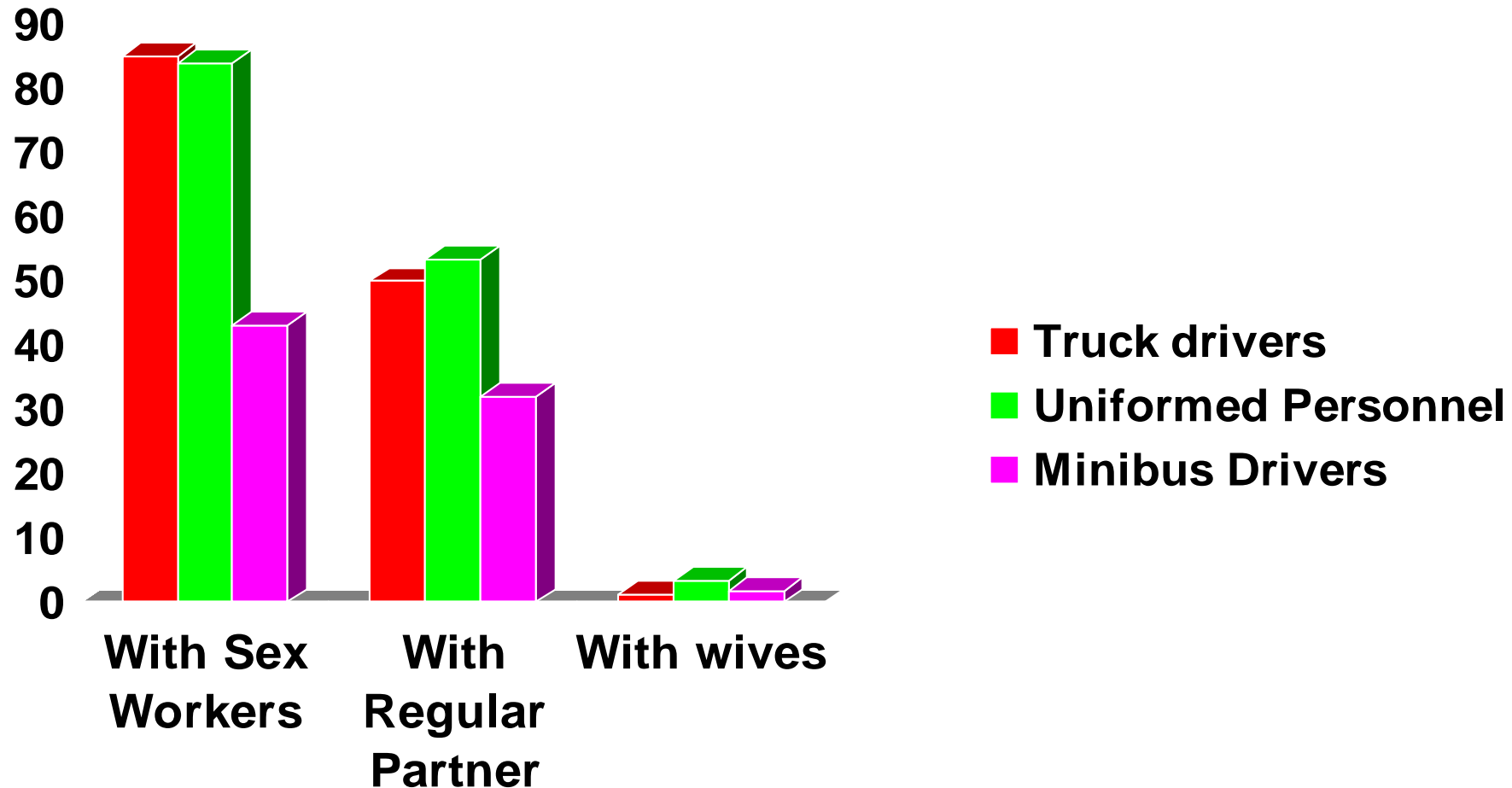


# Male circumcision

HIV seroprevalence for pregnant women, 1985 - 2000,  
and estimated male circumcision rates, selected urban areas of Africa

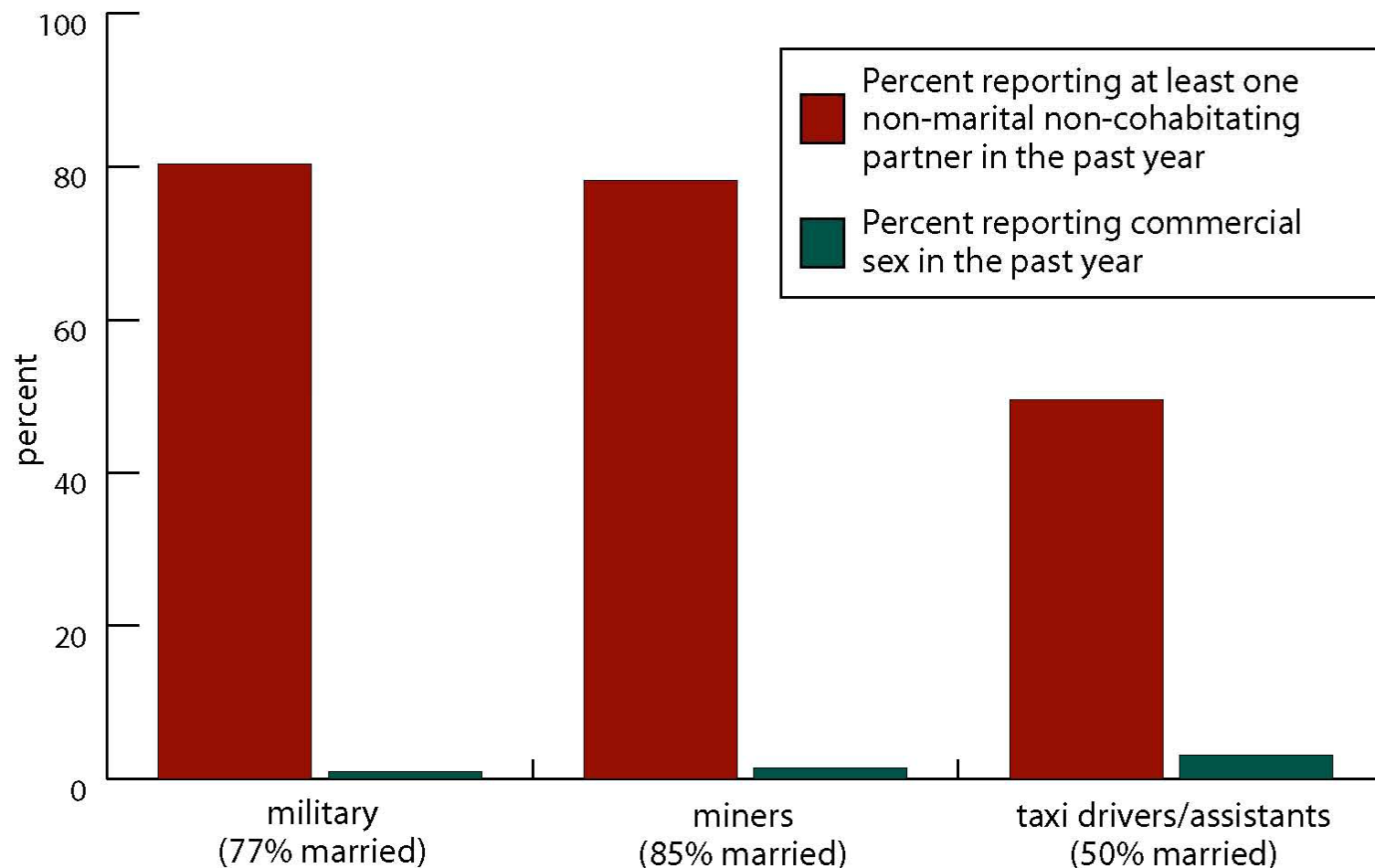


# Consistent condom use by type of partner, Zambia 2003



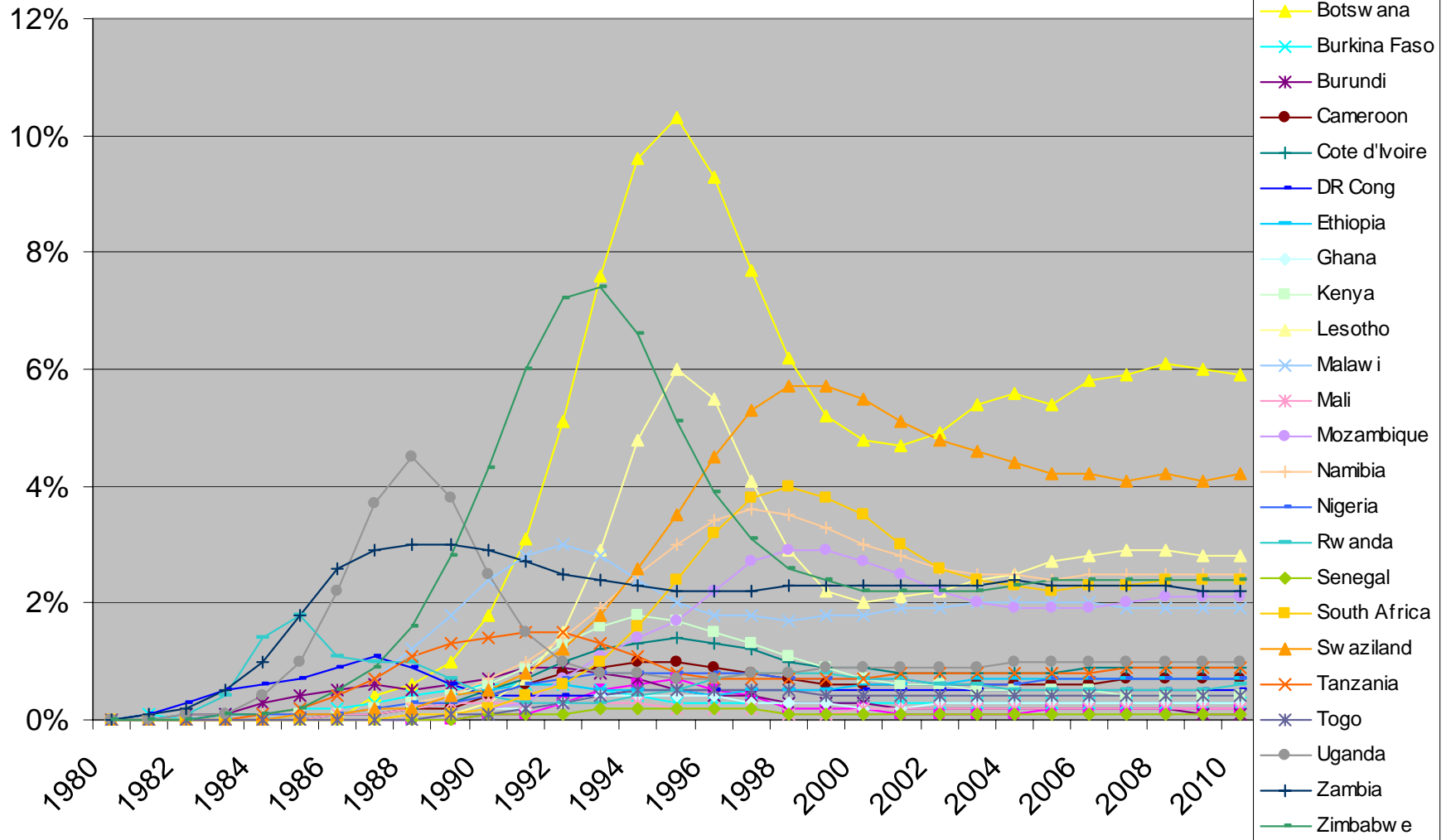
# Low levels of “highest-risk” sex in high-prevalence epidemics

Lesotho: 2002 adult male behavioral surveillance indicators





# Adult HIV Incidence



UNAIDS Modeling

# Population-based vs Antenatal Surveillance

- Population-based (DHS)
  - Representative household sample (men and women)
  - Standardized across countries (and time)
  - Can correlate HIV with demographics and behavior
  - Some degree of refusal
  - 3-5 years
  - Miss some high risk
- ANC
  - More often
  - Refusals few
  - Methodology less standard
  - Women of reproductive age
  - Urban & Areas of social interaction
  - Higher SES?
  - Higher risk of HIV during pregnancy

# Some Explanations of Overestimation of Global HIV?

- Population-based surveys revealed that ANC levels often overestimate
  - Male/Female
  - Urban/Rural
  - Areas of more social interaction
  - ?Wealthier, ?Higher infection rate in pregnancy
- Focus on prevalence (rather than incidence) – lagging indicator
- Forward extrapolations for other parts of the world based on Africa experience
- Still processing